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**A6H HJE**

(56) Documents Cited

**US 6254484 B1**

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(58) Field of Search

**UK CL (Edition T) A6H HJE HLM HMC**

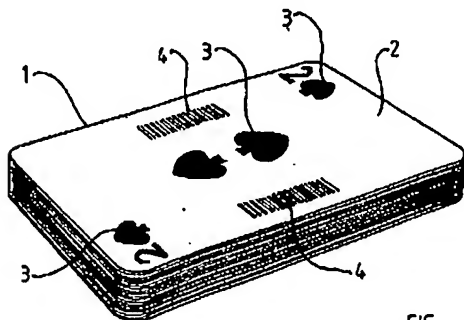
**INT CL<sup>7</sup> A63F 1/00 1/04 1/12 1/14 1/18**

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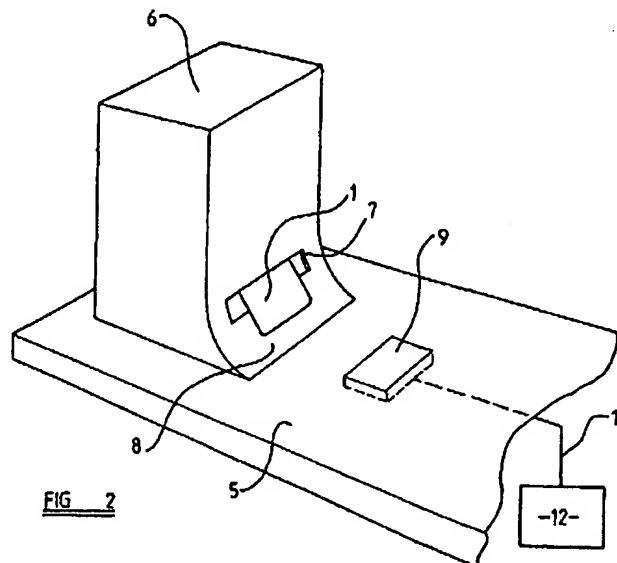
(54) Abstract Title

**A deck of cards with machine code and a networked dealing shoe and sensors**

(57) A deck of cards and a dealing shoe comprises at least one deck of cards, each card 1 having a back and an identification face 2, the identification face having conventional information 3, displaying the identity of the card, and machine readable information 4, the machine readable information identifying the card and being supplementary to the conventional information. A reader 9 operable to read the machine readable information displayed on the card where the machine readable information may be a bar code, read by the reader as it is dealt from the dealing area which may be a dealing shoe 6 which incorporates the reader. A plurality of destination areas (10 a,b 11a,b figure 3) may also be included to which the cards are dealt by the dealing shoe, and at which destination areas are located sensors 12 able to detect the presence of the cards. The dealing shoe may include a processing machine (12 figure 4) which may be a computer or server which can be connected 11 to the reader and sensors where information about the identity of the cards may be exchanged between the sensors, readers and server. The information exchanged may also include the progress of the game, bets placed, jackpot and the winning position. The networking may be hard wired or remote (14 figure 4) using the telephone lines and the Internet (15 figure 4) to allow online betting.



**FIG 1**



**FIG 2**

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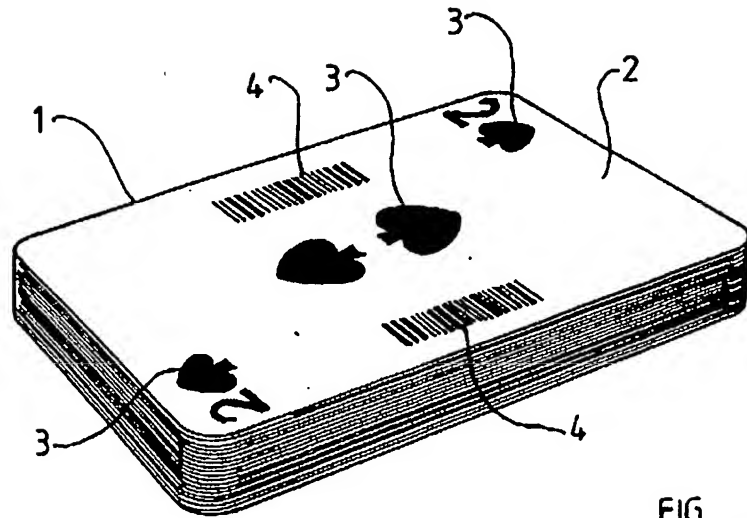


FIG 1

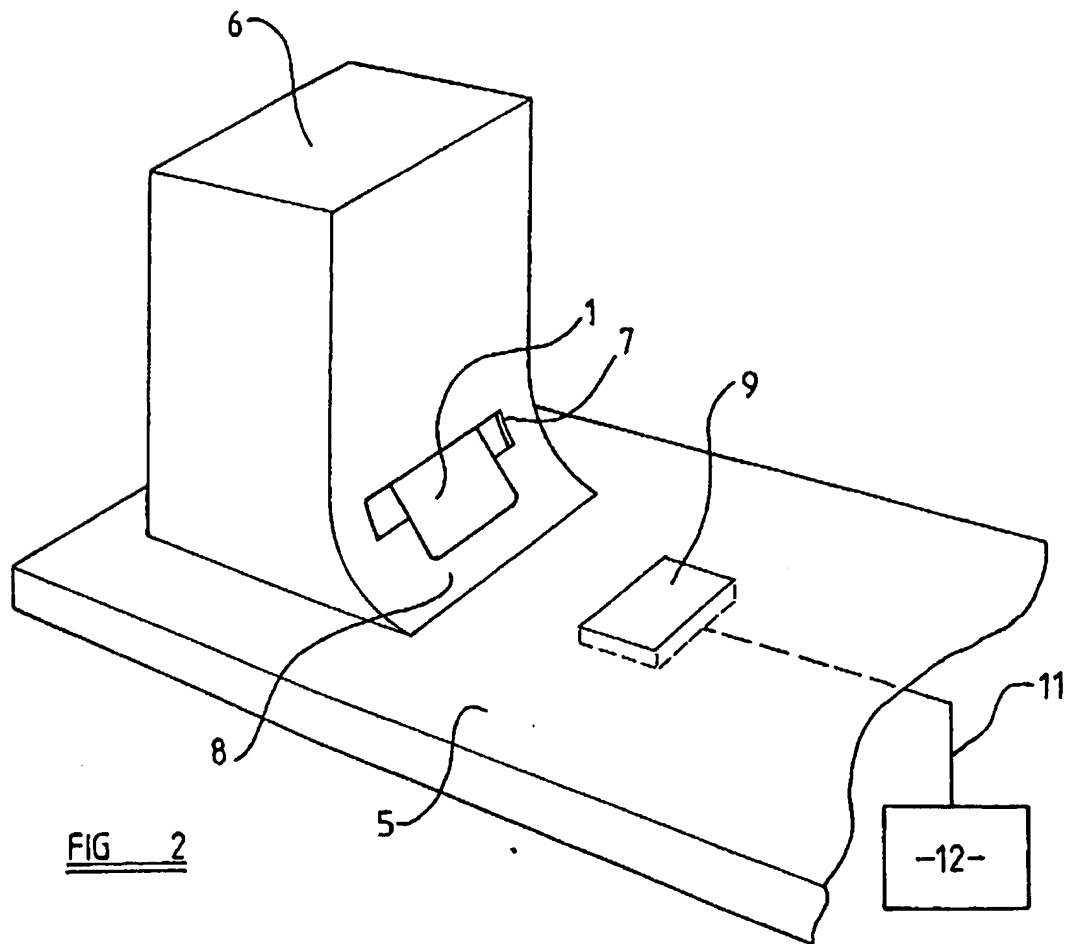


FIG 2

-12-

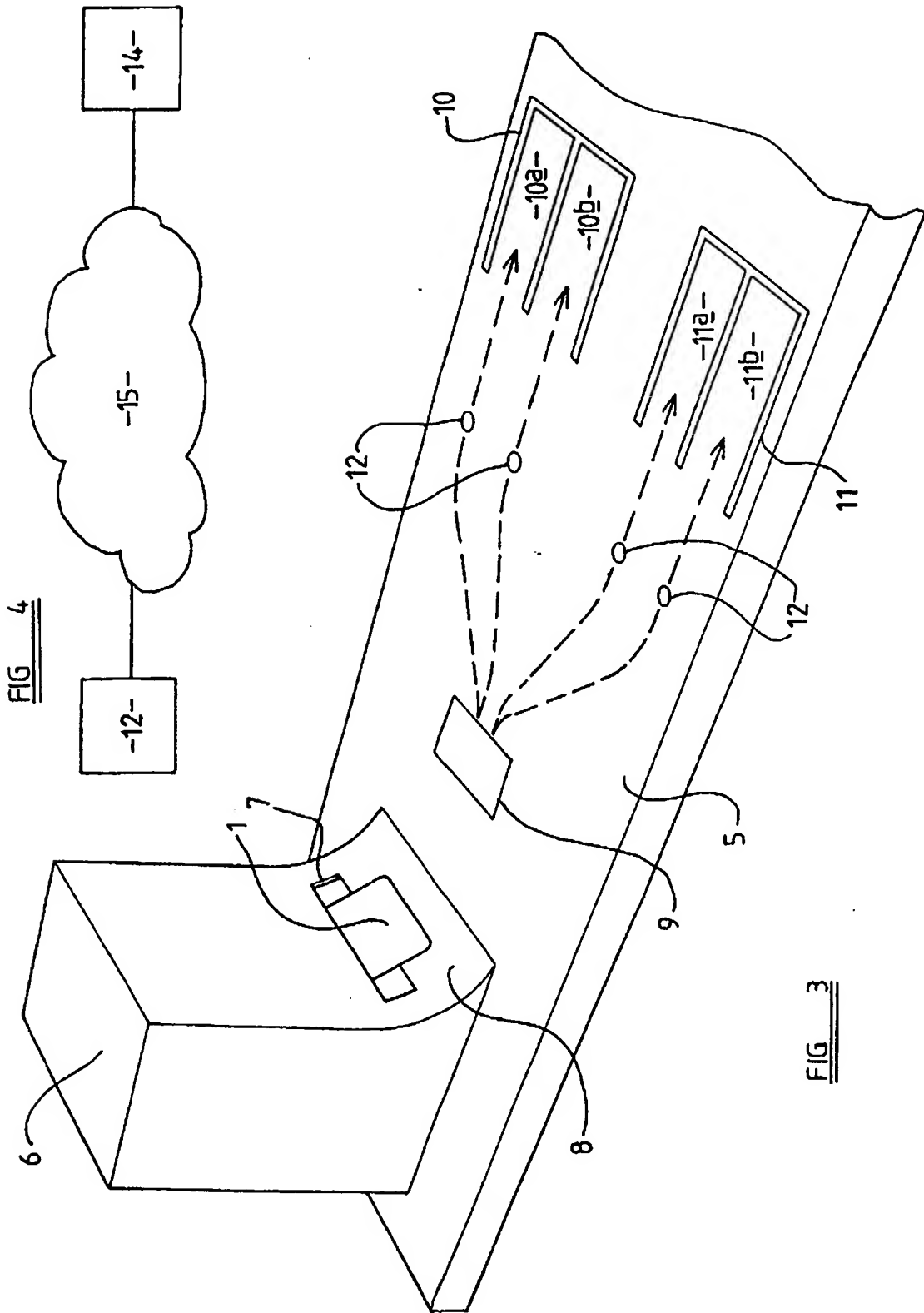


FIG 4

FIG 3

### **"A Gaming Apparatus"**

THIS INVENTION relates to a gaming apparatus, and in particular to a gaming apparatus that allows a number of people to follow the progress of a card game.

For many years it has been customary for legalised gambling to take place in casinos. Typically, a casino will operate a number of games, such as roulette and various card games, in which one or more players may take part and place bets on the outcome of the game. In addition to the individuals actually involved in the playing of each game, people (either at the casino or remote therefrom) also wish to follow and place bets upon the performance of these individuals. Such people take no active part in the conduct of the game and must accept any decisions taken by the individual that he or she has backed.

However, in some card games played in casinos, the rules of the game dictate that cards are dealt to players face-down, so that a bystander or person attempting to follow the game is unable to establish the identity of the card. While the concealment of the identity of the card from some or all of the individuals actually involved in the playing of the game may be crucial to the correct playing of the game itself, certain people who have placed bets upon the performance of these individuals may well be interested in knowing the identity of cards that have been dealt to the individuals face-down.

It is an object of the present invention to seek to provide an apparatus and method for allowing one or more observers to follow the progress of a card

game, even if some of the cards dealt during the playing of the game are dealt face-down.

Accordingly, one aspect of the present invention provides a deck of playing cards, each card having a back and an identification face, the identification face having conventional information, displaying the identity of the card, and machine-readable information, the machine-readable information identifying the card and being supplementary to the conventional information.

Advantageously, the machine-readable information comprises a bar code.

Another aspect of the present invention provides a gaming apparatus comprising: at least one deck of playing cards, each card having a back and an identification face, the identification face having conventional information, displaying the identity of the card, and machine-readable information, the machine-readable information identifying the card and being supplementary to the conventional information; and a reader operable to read the machine-readable information displayed on the at least one card.

Preferably, the apparatus further comprises a dealing area, the reader being positioned such that, as a playing card is dealt from the dealing area, the machine-readable information displayed on the playing card is readable by the reader.

Conveniently, the dealing area comprises a dealing shoe.

Advantageously, the reader is provided as a part of the dealing shoe.

Preferably, the apparatus further comprises at least one sensor operable to detect the presence of a playing card.

A further aspect of the present invention provides a gaming apparatus comprising: a reader operable to read machine-readable information displayed on a playing card; and a sensor operable to detect the presence of a playing card.

Conveniently, the apparatus further comprises: a dealing area; and a destination area associated with the sensor, arranged so that, if a playing card having machine-readable information displayed thereon is dealt from the dealing area to the destination area, the machined-readable information displayed on the card is readable by the reader, and the passage of the card into the destination area is detectable by the sensor.

Advantageously, the apparatus comprises a plurality of destination areas, each of the destination areas being associated with a respective sensor.

Preferably, the dealing area comprises a dealing shoe.

Another aspect of the present invention provide a gaming apparatus according to the above, in combination with a deck of playing cards according to the above.

Conveniently, the apparatus further comprises a connection to a processing machine.

Advantageously, the apparatus is operable to transmit information regarding the identity of a playing card whose machine-readable information has been read by the reader to the processing machine via the connection.

Preferably, the apparatus further comprises a processing machine connected to the gaming apparatus by the connection.

Conveniently, the processing machine is operable to display the identity of a playing card whose machine-readable information has been read by the reader.

Advantageously, the processing machine is operable to transmit the identity of a playing card whose machine-readable information has been read by the reader over a network for remote display.

Preferably, the network is the Internet.

Conveniently, the processing machine is operable to accept a bet relating to the performance of an individual playing a game involving the gaming apparatus.

Advantageously, the processing machine is operable to track the progress of an individual upon whom a bet has been placed, and determine whether the bet has been successful.

A further aspect of the present invention provides a method of gathering information relating to a game, comprising the steps of: providing a deck of playing cards each having a back and an identification face, the identification face having conventional information, displaying the identity of the card, and

machine-readable information, the machine-readable information identifying the card and being supplementary to the conventional information; providing a reader operable to read the machine-readable information displayed on the playing card; and reading the machine-readable information displayed on the playing card while the game is in progress to establish the identity of the playing card.

Preferably, the step of reading the machine-readable information displayed on the playing card while the game is in progress comprises the step of reading the machine-readable information displayed on the playing card as the playing card is dealt from a dealing area.

Conveniently, the method further comprises the steps of: providing a sensor operable to sense the presence of the playing card; and sensing the presence of the playing card while the game is in progress.

Advantageously, the step of sensing the presence of the playing card while the game is in progress comprises the step of sensing the presence of the playing card as the playing card is given to an individual involved in the game.

In order that the present invention may be more readily understood, embodiments thereof will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a deck of playing cards embodying the present invention;

Figure 2 shows a first gaming apparatus embodying the present invention;



Figure 3 shows a second gaming apparatus embodying the present invention; and

Figure 4 shows an arrangement suitable for allowing remote bettors to follow the progress of a game played on the gaming apparatus of Figures 1 and 2.

Turning firstly to Figure 1, a deck of playing cards embodying the present invention is shown, with one representative playing card 1 at the front of the deck. In common with conventional playing cards, each playing card 1 embodying the present invention comprises a back (not shown) and an identification face 2.

The back of the playing card 1 shows a design which is, preferably, also displayed on the backs of each of the other playing cards which, together with the playing card 1, make up the full deck of playing cards. Hence, no information which might identify the suit or value of the playing card 1 is displayed on the back thereof.

Conventional information 3 identifying the suit and value of the playing card 1 is displayed on the identification face 2 thereof. The conventional information 3 may include, but is not limited to, numbers and letters to represent the value of the card, and pips to designate the suit of the card. It will be appreciated that an enormous variety of different designs of playing card are available, and the conventional information 3 displayed on the identification face 2 of the playing card 1 may include any information readily recognised by a human player as designating the value and suit of the playing card 1.

In addition to the conventional information 3 displayed on the identification face 2 of the card 1, machine-readable information 4 is also displayed on the identification face 2 thereof. The machine-readable information 4 comprises information in addition to the conventional information 3, which additional information may be optically read by a machine to allow the machine to determine the value and suit of the playing card 1.

In a preferred embodiment of the invention, the machine-readable information 4 comprises at least one bar code. In the example depicted in Figure 1, two bar codes are shown, printed in opposing orientations, and this will be discussed in more detail below.

The machine-readable information 4 displayed on the playing card 1 are not limited to bar codes, and a skilled person will immediately understand that there are a large number of alternative machine-readable information 4 that may be displayed on the identification face 2 of the playing card 1 in addition to the conventional information 3 displayed thereon. While the machine-readable information 4 is supplementary to the conventional information 3, the machine-readable information 4 may be provided as part of the conventional information 3. For example, one embodiment of the present invention provides machine-readable information 4 comprising a digital watermark imposed on one of the pips or numbers of a playing card 1, and a skilled person will really appreciate how such marking may be achieved.

Turning to Figure 2, a first gaming apparatus embodying the present invention is shown. On a gaming surface 5, a dealing shoe 6 is placed. The dealing shoe 6 is a conventional item, which is used to dispense playing cards face-down on to the gaming surface 5. During use of the dealing shoe 6, a

playing card 1 embodying the present invention is presented at the mouth of a slot 7 of the gaming shoe 6, and this playing card 1 may be removed from the gaming shoe 6 by a dealer by sliding the playing card 1 down a curved portion 8 of the dealing shoe 6 onto the gaming surface 5.

Near the area of the gaming surface 5 on to which playing cards 1 are dealt from the gaming shoe 6, a reader 9 is located. The body of the reader 9 is positioned beneath the gaming surface 5, so that the gaming surface 5 in the region of the reader 9 is smooth and uninterrupted. The nature of the reader 9 depends upon the nature of the machine-readable information 4 displayed on the identification surface 2 of the playing card 1. For instance, if the machine-readable information 4 displayed on the playing card 1 comprises one or more bar codes, then the reader 9 will be a bar code reader operable to read bar codes, and may comprise, for example, a collimated light source, a light sensitive element, and a processor to control these components and process information received therefrom. A skilled person will readily appreciate which type of reader is appropriate for use with a given type of machine-readable information 4.

The reader 9 is arranged so that, when the playing card 1 passes over the reader 9, the machine-readable information 4 displayed on the playing card 1 is read by the reader 9.

If the gaming surface 5 is generally opaque, then a transparent plate 10 may be provided in the gaming surface 5 to allow the reader to optically scan the playing card 1 as it passes.

In an alternative embodiment of the present invention, the reader 9 may be provided as part of the dealing shoe 6. In this embodiment of the invention,

the dealing shoe 6 is provided with an appropriate aperture or transparent portion to allow the reader 9 to read the machine-readable information 4 displayed on playing cards 1 as they are dealt from the dealing shoe 6.

Since the playing card 1 is drawn from the gaming shoe 6 in a predetermined orientation, the reader 9 is advantageously arranged to read the machine-readable information 4 on the playing card 1 in this orientation. Referring back to Figure 1, two bar codes may be provided in opposed orientations on the playing card 1 to improve the probability that at least one of the bar codes will be read correctly by the reader 9.

In a preferred embodiment of the present invention, a connection 11 is provided between the reader 9 and a processing machine 12 such as a lap-top computer or server. Hence, as the playing card 1 is passed over the reader 9 and the machine-readable information 4 displayed thereon is read by the reader 9, information identifying the playing card 1 can be passed from the reader 9 via the connection 11 to the processing machine 12.

In the above-described embodiment in which the reader 9 is provided integrally with the dealing shoe 6, the processing machine 12 may also be provided within the dealing shoe 6.

Turning now to a game that may be played using the gaming apparatus depicted in Figure 2, the game of baccarat will be used as an example. Baccarat is a relatively simple game, and once initial cards have been dealt the game proceeds according to fixed rules, with no decisions to be taken by the players of the game.

At the start of the game of baccarat, hands of two cards each are dealt to a banker and to a player, in a fixed order. Hence, as playing cards 1 are drawn from the dealing shoe 6 and pass over the reader 9, the processing machine 12 (which is programmed in accordance with the rules of baccarat) is able to determine which of the playing cards 1 have been dealt to the banker and which to the player. In a preferred embodiment of the present invention, the reader may emit an audible noise to confirm to the dealer, the players and any observers that a playing card 1 dealt from the dealing shoe 6 has been successfully read. If the dealer deals a playing card 1 and does not hear audible confirmation, he or she will scan the playing card 1 again until audible confirmation is provided.

Depending upon the playing cards 1 that have been dealt in these hands, one of the player or the banker will emerge victorious, or the game will be a draw. However, further playing cards 1 may need to be drawn from the dealing shoe 6, and whether any further playing cards 1 are dealt to the player or to the banker is determined entirely by the initial playing cards 1 drawn. The processing machine is able to establish, from the initial dealing, whether any further playing cards 1 will need to be dealt during the game, and will correctly interpret these playing cards 1 as being allocated to the dealer or the banker as part of the present game, and not as part of a new game.

In an advantageous variation of the above-described embodiment in which the processing machine 12 is provided integrally with the dealing shoe 6, one or more indicators (for instance lights) are provided on an outer surface of the dealing shoe 6, and these indicators are controlled by the processing machine 12. The indicators are operable, if the dealer deals the cards incorrectly, to indicate this fact to the dealer. The indicators may be able to provide several different types of indication (for instance by lighting up in

different colours or sequences) to call the dealer's attention to different types of mis-deal, for instance the dealing of too many or too few cards.

As mentioned above, a third party may wish to place a bet upon the outcome of the game of baccarat. Such a bet may be that the banker will win, that the player will win, or that the game will result in a tie. As the game progresses, the hands dealt to the banker or player may not be immediately visible to a bystander, and it is likely to be a more engaging experience for a third party betting on the outcome of the game if the identities of the playing cards 1 dealt to the banker and the player can be known as soon as they are dealt. Since the playing cards 1 dealt are identified by the processing machine 12, this information may be displayed to a third party as soon as the initial deal has occurred. In an advantageous embodiment of the invention, the identities of the playing cards 1 that have been dealt to the player and banker are displayed on a screen, which screen is not visible to the player or the banker. However, the mode of display of the identities of the playing cards 1 that have been dealt is not limited to a screen, and a skilled person will appreciate that the identities of the playing cards 1 may be made known to a third party, or to a number of third parties, in a wide variety of ways.

Turning to Figure 3, a second gaming apparatus embodying the present invention is shown.

In common with the first gaming apparatus depicted in Figure 2, the second gaming apparatus comprises a gaming surface 5, a dealing shoe 6 and a reader 9 positioned to read machine-readable information 4 displayed on playing cards 1 drawn from the dealing shoe 6. However, in addition, the second gaming apparatus comprises two "boxes" 10, 11, which are regions marked on the gaming surface 5 and allocated to first and second individual

players. Each of the boxes 10, 11 is sub-divided into first and second bays 10a, 10b, 11a, 11b.

Four sensors 12 are positioned on or beneath the gaming surface 5, a sensor 12 being located adjacent each of the bays 10a, 10b, 11a, 11b along the path on the gaming surface 5 between the reader 9 and each of the bays 10a, 10b, 11a, 11b.

The sensors 12 are operable to detect the presence of a playing card. For instance, each of the sensors 12 may comprise a light-sensitive element, which detects the presence of a playing card 1 thereon due to a drop in the level of light gathered by the light-sensitive element. Alternatively, the sensors 12 may comprise pressure-sensitive elements, which detect the presence of a playing card 1 by the downward force exerted on the sensor 12 by the playing card when it rests thereon or passes thereover. The nature of the sensors 12 is not limited to these examples, and a skilled person will readily appreciate that there are many types of sensor which may be used to detect the presence or passing of a playing card 1.

Connections 13 are provided between the sensors 12 and the processing machine 12, and the sensors 12 are operable to pass information to the processing machine 12 regarding the detection of playing cards 1.

The second gaming apparatus is suitable for, for example, the playing of a game of black-jack, as will be explained. At the start of a game of black-jack, the banker and each player are dealt two playing cards 1. Initially, a first playing card 1 will be dealt to the first player, and positioned in the first bay 10a of the first box 10. As this first playing card 1 is dealt from the dealing shoe 6, it will pass over the reader 9, which will read the machine-readable

information 4 displayed thereon and pass this information to the processing machine 12, allowing the processing machine 12 to identify the first playing card 1, as described above. The first playing card 1 will then be slid along the gaming surface 5 (face-down) toward the first bay 10a of the first box 10. As the first playing card 1 enters this bay 10a, it will pass over the sensor 12 positioned adjacent the entrance to the bay 10a, and this sensor 12 will detect the passage of the first playing card 1 thereover. The detection of the first playing card 1 by this sensor 12 will be relayed to the processing machine 12.

Hence, the processing machine 12 is provided with sufficient information to establish the identity of a playing card 1 that has been dealt from the dealing shoe 6, and to establish the bay 10a, 10b, 11a, 11b and box 10, 11 on the gaming surface 5 (and hence establish the player) to which the playing card 1 has been dealt.

In a similar fashion, the second playing card 1 will be dealt to the first bay 11a of the second box 11, and will pass over the reader 9 and the sensor 12 adjacent the entrance of this bay 11a. Again, the processing machine 12 is able to establish the identity of the second playing card 1 and the location on the gaming surface 5 to which the card has been dealt.

As the game progresses, decisions may be taken by the players associated with the first and second boxes 10, 11, and the processing machine 12 would not have been able, using the first apparatus embodying the present invention, to determine the bay 10a, 10b, 11a, 11b or box 10, 11 on the gaming surface 5 to which playing cards 1 will be dealt after the initial cards have been dealt to the players in accordance with the fixed rules of the game being played. However, because of the provision of the sensors 12, this problem is solved, allowing the apparatus to determine dealt card locations after an initial fixed



dealing pattern. In an alternative embodiment, the reader 9 may be dispensed with and the sensors 12 themselves comprise or are replaced by readers. Since these readers are located at the entrance to each bay 10a, 10b, 11a 11b, the processing machine 12 can readily establish from information received from the readers both the identity of each playing card 1 dealt and the location to which it has been dealt.

In a preferred embodiment, the processing machine 12 is programmed with the rules of black-jack, and will be able to establish, from the information gathered by the reader 9 and the sensors 12, the outcome of each hand dealt to a box 10, 11.

As discussed above, third parties may wish to place bets upon the performance of any of the players or the banker and, in a similar manner to that described above, the playing cards 1 that have been dealt to each player and to the banker may be displayed on the screen in such a way that the players and the banker involved in the game are not able to see the screen or be informed of its content.

The present invention also finds application in the field of Internet betting. A game of baccarat or black-jack such as those described above may be presented to a remote better via, for example, television or the Internet, and the remote better may choose to place a bet on the performance of one or more of the players. To place such a bet, the remote gambler may enter the amount of the bet and the identity of the player or players in question, as well as the nature of his bet, on to a suitable website, and submit this information to a server, which is either the processing machine or is connected thereto. An arrangement suitable for allowing such betting is shown in Figure 4.

Information is carried between the processing machine 12 and a remote user terminal 14 via the Internet 15.

Once the processing machine 12 has accepted the remote gambler's bet, the processing machine 12 is able to track the progress of the game and establish whether or not the remote gambler has won his or her bet.

Using such a setup, many remote gamblers may place bets upon the outcome of the same game, and in this way a large number of people may participate in the game. It is envisaged that participation in a card game of this type may be particularly popular if a televised game were to be played amongst celebrities, with viewers being able to back the celebrity of their choice to win, or alternatively to lose, the game.

It will be appreciated that the present invention provides a useful tool for allowing any number of people to follow the progress of a card game, and to place bets upon the performance of individuals participating in the game.

In the present specification "comprises" means "includes or consists of" and "comprising" means "including or consisting of".

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

## CLAIMS:

1. A deck of playing cards, each card having a back and an identification face, the identification face having conventional information, displaying the identity of the card, and machine-readable information, the machine-readable information identifying the card and being supplementary to the conventional information.
2. A deck according to Claim 1, wherein the machine-readable information comprises a bar code.
3. A gaming apparatus comprising:
  - at least one deck of playing cards, each card having a back and an identification face, the identification face having conventional information, displaying the identity of the card, and machine-readable information, the machine-readable information identifying the card and being supplementary to the conventional information; and
  - a reader operable to read the machine-readable information displayed on the at least one card.
4. A gaming apparatus according to Claim 3, further comprising a dealing area, the reader being positioned such that, as a playing card is dealt from the dealing area, the machine-readable information displayed on the playing card is readable by the reader.
5. A gaming apparatus according to Claim 4, wherein the dealing area comprises a dealing shoe.

6. A gaming apparatus according to Claim 5, wherein the reader is provided as a part of the dealing shoe.
7. A gaming apparatus according to any one of Claims 3 to 6, further comprising at least one sensor operable to detect the presence of a playing card.
8. A gaming apparatus comprising:
  - a reader operable to read machine-readable information displayed on a playing card; and
  - a sensor operable to detect the presence of a playing card.
9. A gaming apparatus according to Claim 8, further comprising:
  - a dealing area; and
  - a destination area associated with the sensor,arranged so that, if a playing card having machine-readable information displayed thereon is dealt from the dealing area to the destination area, the machined-readable information displayed on the card is readable by the reader, and the passage of the card into the destination area is detectable by the sensor.
10. A gaming apparatus according to Claim 9, comprising a plurality of destination areas, each of the destination areas being associated with a respective sensor.
11. A gaming apparatus according to Claim 9 or 10, wherein the dealing area comprises a dealing shoe.
12. A gaming apparatus according to any one of Claims 9 to 11, in combination with a deck of playing cards according to any one of Claims 1 to 5.

13. A gaming apparatus according to any one of Claims 6 to 12, further comprising a connection to a processing machine.
14. A gaming apparatus according to Claim 13, operable to transmit information regarding the identity of a playing card whose machine-readable information has been read by the reader to the processing machine via the connection.
15. A gaming apparatus according to Claim 13 or 14, further comprising a processing machine connected to the gaming apparatus by the connection.
16. A gaming apparatus according to Claim 15, wherein the processing machine is operable to display the identity of a playing card whose machine-readable information has been read by the reader.
17. A gaming apparatus according to Claim 15 or 16, wherein the processing machine is operable to transmit the identity of a playing card whose machine-readable information has been read by the reader over a network for remote display.
18. A gaming apparatus according to Claim 17, wherein the network is the Internet.
19. A gaming apparatus according to any one of Claims 15 to 18, wherein the processing machine is operable to accept a bet relating to the performance of an individual playing a game involving the gaming apparatus.

20. A gaming apparatus according to Claim 19, wherein the processing machine is operable to track the progress of an individual upon whom a bet has been placed, and determine whether the bet has been successful.

21. A method of gathering information relating to a game, comprising the steps of:

providing a deck of playing cards each having a back and an identification face, the identification face having conventional information, displaying the identity of the card, and machine-readable information, the machine-readable information identifying the card and being supplementary to the conventional information;

providing a reader operable to read the machine-readable information displayed on the playing card; and

reading the machine-readable information displayed on the playing card while the game is in progress to establish the identity of the playing card.

22. A method according to Claim 21, wherein the step of reading the machine-readable information displayed on the playing card while the game is in progress comprises the step of reading the machine-readable information displayed on the playing card as the playing card is dealt from a dealing area.

23. A method according to Claim 21 or 22, further comprising the steps of:  
providing a sensor operable to sense the presence of the playing card;  
and

sensing the presence of the playing card while the game is in progress.

24. A method according to Claim 23, wherein the step of sensing the presence of the playing card while the game is in progress comprises the step of

sensing the presence of the playing card as the playing card is given to an individual involved in the game.

25. A deck of playing cards substantially as hereinbefore described, with reference to the accompanying drawings.

26. A gaming apparatus substantially as hereinbefore described, with reference to the accompanying drawings.

27. A method substantially as hereinbefore described, with reference to the accompanying drawings.

28. Any novel feature or combination of features disclosed herein.



INVESTOR IN PEOPLE

Application No: GB 0123459.0  
Claims searched: At least 1-7

Examiner: H Gupwell  
Date of search: 2 August 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): A6H: (HJE, HMC, HLM).

Int Cl (Ed.7): A63F: 1/00, 1/04, 1/12, 1/14, 1/18.

Other: Online: EPODOC, WPI, JAPIO.

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 6254484 B1 (Mc CREA, jr) whole document	1-7,13-24
X	US 5735525 A (Mc CREA, jr) whole document	1-7,13-24

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.



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